ASEAN Journal of Community Engagement

Volume 6
Number 1 *July 2022*

Article 7

7-31-2022

Comprehensive Efforts to Accelerate Non-Communicable Disease Services in the Era of COVID-19 in Indonesia's Suburban Area

Akmal Taher
Department of Urology, Cipto Mangunkusumo Hospital, Faculty of Medicine, Universitas Indonesia, Indonesia, aketaher@gmail.com

Soehartati A. Gondhowiardjo
Department of Radiation Oncology, Cipto Mangunkusumo Hospital, Faculty of Medicine, Universitas Indonesia, Indonesia

See next page for additional authors

Recommended Citation

Taher, Akmal; Gondhowiardjo, Soehartati A.; Bachtiar, Adang; Prasetyo, Sabarinah; Pixelyne, Irene; Huang, Ficky; and Ahmad, Rima Sumayyah (2022). Comprehensive Efforts to Accelerate Non-Communicable Disease Services in the Era of COVID-19 in Indonesia's Suburban Area. *ASEAN Journal of Community Engagement*, 6(1), 152-168.
Available at: https://doi.org/10.7454/ajce.v6i1.1167

ASEAN Journal of Community Engagement
ISSN: 2581-0030 / E-ISSN: 2580-9563
https://scholarhub.ui.ac.id/ajce
Page: 152-168

Comprehensive Efforts to Accelerate Non-Communicable Disease Services in the Era of COVID-19 in Indonesia's Suburban Area

Akmal Taher[1*], Soeharti A. Gondhowiardjo[2], Adang Bachtiar[3], Sabarinah Prasetyo[4], Irene Pixelyne[5], Ficky Huang[1], Rima Sumayyah Ahmad[6]

[1]*Department of Urology, CiptoMangunkusumo Hospital, Faculty of Medicine, Universitas Indonesia, Indonesia*

[2]*Department of Radiation Oncology, CiptoMangunkusumo Hospital, Faculty of Medicine, Universitas Indonesia, Indonesia*

[3]*Department of Public Health, Faculty of Public Health, Universitas Indonesia, Indonesia*

[4]*Department of Biostatistics and Population Studies, Faculty of Public Health, Universitas Indonesia, Indonesia*

[5]*Faculty of Computer Science, Universitas Indonesia, Indonesia*

[6]*Centre for Indonesia's Strategic Development Initiatives, Jakarta, Indonesia*

*Correspondence email: aketaher@gmail.com

Received: November 22nd, 2021, Accepted: July 18th, 2022

Abstract The COVID-19 crisis has disrupted non-communicable disease (NCD) services in primary health care, and NCD is one of the comorbidities that increase mortality in COVID-19 patients. Efforts to accelerate NCD services were carried out with the focus on two programs: the development of integrated polyclinic NCD services and the training of community health workers (CHW) at the Tanara Community Health Center (CHC) in Banten. The development of a continuous team-based service system from the Pos Pembinaan Terpadu (Posbindu)/integrated service post to NCD services at the CHC was carried out for six months to improve the quality of human resources and help provide recommendations in the implementation of NCD services. At the end of the program, there was a 26.1% increase in the number of hypertension patients receiving treatment compared with the previous year, and there was a significant increase in the level of knowledge of CHWs after training and long-term mentoring ($p < 0.001$). Efforts to accelerate NCD services require support from all parties, and to ensure the continuity of these efforts, periodic monitoring and evaluation are necessary.

Keywords: community health worker; community health center; COVID-19; non-communicable disease; primary health care; training.

1. Introduction

The first case of Coronavirus Disease 2019 (COVID-19) in Indonesia was reported on March 2nd, 2020, and as of October 22, 2021, there were 4,238,594 confirmed cases and 143,153 deaths attributed to COVID-19 (World Health Organization, 2021). The number of deaths attributed to COVID-19 in Indonesia is the highest in Southeast Asia and the second highest

https://doi.org/10.7454/ajce.v6i1.1167
How to cite the article (APA version):
Taher, A., Gndhowiardjo, S. A., Bachtiar, A., Prasetyo, S., Pixelyne, I., Huang, F., & Ahmad, R. S. (2022). Comprehensive Efforts to Accelerate Non-Communicable Disease Services in the Era of COVID-19 in Indonesia's Suburban Area. *ASEAN Journal of Community Engagement*, *6*(1), 152-168.

in Asia after India (Dong et al., 2020). A retrospective study by Surendra et al. (2021) showed that deaths attributed to COVID-19 in Indonesia were associated with non-communicable diseases (NCDs) such as hypertension, diabetes, and chronic kidney disease, and patients with more than one comorbidity have a higher risk of death than patients without comorbidities (Surendra et al., 2021).

Cardiovascular disease, cancers, chronic lung disease, and diabetes are estimated to cause about 73% of deaths in Indonesia (World Health Organization, 2018b). Basic Health Research Data in 2018 showed that the prevalence of high blood pressure in the population aged 18 years and over increased from 25.8% in 2013 to 34.1%, and the prevalence of diabetes mellitus in the population aged 15 and over increased from 6.9% in 2013 to 10.9% (Ministry of Health, 2018). The Ministry of Health has launched various efforts to reduce and control the incidence of NCDs at the primary care level, some examples of which are the NCD Integrated Service Program / Program Pelayanan Terpadu (PANDU) Penyakit Tidak Menular, the NCD Risk Factor Early Detection Program at the integrated community health post / Pos Pembinaan Terpadu (Posbindu), and early detection of cancer through IVA and Pap smears (Ministry of Health, 2019). However, during the COVID-19 outbreak, NCD services could not be optimally delivered, which can worsen morbidity and mortality due to NCDs in patients with COVID-19.

Tanara Sub-district, located in Serang District in Banten Province, had a high number of NCDs, especially hypertension. In 2020, hypertension cases accounted for more than 60% of NCD case visits at Tanara's CHC (Tanara Community Health Center, 2020). According to Serang District Health Office reports in 2018, it was estimated that only 72.1% of total hypertension cases in Serang District were diagnosed and treated accordingly (Dinas Kesehatan KabupatenSerang, 2019). In addition to high cases of NCDs, there is an imbalance between the size of the population and available health facilities; the population in Tanara District, based on data from the Central Statistics Agency in 2019, was 40,472, but there was only one medical center / Balai Pengobatan and two CHCs (Badan Pusat Statistik Kabupaten Serang, 2019).

Non-communicable disease services during the COVID-19 crisis faced many challenges, especially the decrease of patient visits to primary health care. Tsaqif (2021) reported a decrease of almost 14% of patient visits to CHCs during the period of March–December 2020 compared with March–December 2019. Moreover, the COVID-19 crisis also exposed the unpreparedness of the health care system in dealing with worldwide pandemics. This pandemic affected primary health care not only in developing countries but also well-

https://doi.org/10.7454/ajce.v6i1.1167

resourced countries such as the US, the UK, Australia, New Zealand, and Canada, as sustaining primary health care in a prolonged crisis had never been determined (Huston et al., 2020).

Team-based care is a coordinated style of treatment that involves a collaborative relationship between diverse health care professionals such as doctors, pharmacists, nurses, and other non-physician clinicians, each with their own specialization (Chisholm-Burns, et al., 2010; Santschi, et al., 2017). Team-based care attempts to improve provider communication and coordination of care support, build frequent, organized follow-up procedures to assess patients' progress, and schedule further visits as needed (Carter et al., 2009; Proia, et al., 2014). In Indonesia's primary health care system, team-based care for NCD management has been implemented in several government programs such as *Gerakan Masyarakat Hidup Sehat* or the Healthy Community Movement Campaign, Program *Indonesia Sehatdengan Pendekatan Keluarga (PIS-PK)* or Comprehensive family-based approach in health promotion and prevention and also the curative and rehabilitative treatment for community and also the optimization of CHC in the management of NCD. During the COVID-19 crisis, however, several changes occurred in primary health care , giving rise to unprecedented problems such as declines in patient visits, changes in adherence to medication, delays in treatment, and many others (Nikoloski et al., 2021; Rahman et al., 2021; Rhatomy & Prasetyo, 2020).

Given the long-term importance of NCD services at the primary level, it is necessary to have a comprehensive, non-communicable disease services acceleration program and involve all relevant parties immediately to create a coordinated, team-based approach in handling COVID-19-related problems in NCD management. Moreover, a carefully planned community service program is urgently needed to overhaul NCD management. This study intends to fill the gap of knowledge about the effectiveness of applying a team-based approach in NCD treatment during the Covid-19 crisis in Indonesia's primary health care services. This is the first study to address a team-based care approach to NCD in Indonesia during COVID-19crisis.

2. Methods

These efforts to accelerate the NCD services program in Tanara Sub-district were part of the Community Service Program funded by Universitas Indonesia and the result of a collaboration between the 1980s Alumni Association of the Faculty of Medicine, Universitas Indonesia, the Faculty of Medicine, Universitas Sultan Ageng Tirtayasa, and the Indonesian

https://doi.org/10.7454/ajce.v6i1.1167

Family Doctors Association / *Perhimpunan Dokter Keluarga Indonesia*. This community service program was carried out for nine months, from December 2020 to August 2021. The program began with identifying problems related to NCD services at the community level and CHC level and preparing cross-sectoral action plans with stakeholders.

Based on interviews with stakeholders and direct surveys among Tanara Sub-district stakeholders, Tanara CHC workers, CHWs, and public figures, it was found that both in-building services and outside-building services need improving. The CHWs have not been trained in the delivery of health services during the COVID-19crisis. The supply of personal protective equipment (PPE) was also limited. In addition, the current practice in Posbindu has not implemented the 5-table system recommended by the Ministry of Health.

Therefore, two action plans were formulated to accelerate NCD services in Tanara Sub-district by developing service teams: the Integrated Polyclinic NCD Services / Poli PANDU PTM, and the revitalization of community health posts (Posbindu) to adapt to changes during the COVID-19 crisis. These action plans were carried out for six months with direct assistance from the project team and from one on-site coordinator.

An intervention group of three Posbindu received intensive CHW training and mentoring in Tanara Village and Sukamanah Village. There was a total of 90 CHWs in Tanara Sub-district. CHW training was provided to 31 workers, 14 of whom also received intensive assistance for six months. Before and after the training and intensive mentoring, the workers' level of knowledge was measured using pre-test and post-test questionnaires consisting of 15 questions. At the end of the training and mentoring, there was an assessment of the difference between CHWs who received training accompanied by intensive mentoring (Group A) and those who received training only (Group B). The data analysis was carried out using a paired t-test and the Wilcoxon test to compare the before and after effect of the intervention on the CHWs' knowledge.

3. Results and discussion

Primary health care required rapid adaptation by health workers to maintain the quality and quantity of services, and health care workers also had to pay attention to patients' safety during the COVID-19 crisis (Guedes et al., 2021; Plagg et al., 2021). Therefore, comprehensive acceleration efforts were needed for services both within and outside the building for NCD while maintaining safe and high-quality care (Peiris et al., 2021; World Health Organization Western Pacific Region, 2021).

https://doi.org/10.7454/ajce.v6i1.1167

Based on the Ministry of Health's Technical Guidelines for CHC during the COVID-19 crisis, several aspects of NCD services require adaptation, including a) the monitoring of NCD risk factors such as checking blood sugar and measuring blood pressure through home visits, appointments, or special arrangements for such services; b) increasing education and health promotion in prevention of NCD risk factors and COVID-19 so that people with NCD risk factors do not develop NCD; c) extended provision of pharmaceutical services for the elderly and patients with NCD and other chronic diseases (Ministry of Health, 2020).

We implemented two action plans in this community service program to accelerate NCD services following the Ministry of Health's technical instructions. We focused on two main programs: developing Poli PANDU PTM Integrasi / integrated polyclinic NCD services (INSP) and training and intensive mentoring of community health workers (CHW) in *Pos Pembinaan Terpadu* (Posbindu) / integrated service posts (IHP). We aimed to create a continuous team-based service system that is sustainable, synergistic, and able to handle NCD service in Tanara Sub-district even during the COVID-19 crisis. With this system, individuals with NCD risk will be screened in the Posbindu / IHP. Then, a complete diagnosis and treatment regarding NCD will be provided in the INSP. Finally, an intensive follow-up will be provided by the Posbindu / IHC to ensure more patients with NCD are screened and adequate treatment and follow-up are provided.

3.1. Integrated polyclinic NCD service / *Poli PANDU PTM integrasi*

This program aimed to optimize and integrate the effort to screen and treat NCD patients in CHCs. This special NCD polyclinic was capacitated with nutrition counseling, behavioral counseling, and regular health promotion programs via social media. The two outcomes of this sub-program were the development of *standard operating procedures* (SOP) for integrated NCD services and an increase in health promotion through social media usage.

The goal of the development of SOP is to integrate NCD services with nutrition counseling and behavioral counseling. The implementation of the INSP program began in February 2021 and was conducted every Monday. The implementation of the INSP program was carried out as follows: (i) all patients older than 15 were screened for high blood pressure as the initial examination in all polyclinics that were available in the CHCs; (ii) if high blood pressure (>140/90 mmHg) was detected, the patient was referred to INSP for further work; (iii) in INSP, the patient was examined for NCD risk factors, providing data such as weight and height, waist circumference, nutritional status, prior NCDs, and family history, and was given a comprehensive physical examination and, if needed, laboratory tests such as blood

https://doi.org/10.7454/ajce.v6i1.1167

glucose, cholesterol level, and uric acid; (iv) pharmaceuticals and general counseling were given according to the assessment by the doctor in charge, and the patient was referred to a nutritionist and counselors for more specific advice regarding the NCD that the patient suffered; (v) the patients were then asked for consent to be included in the WhatsApp group made by the CHC for more information about NCDs and regular reminders for check-ups.

The implementation of the newly developed INSP lasted for six months and in the same period, mainly because the basis for the initial screening was blood pressure checks. Figure 1 shows that there was a spike of 26.1% in the number of hypertension patients seeking treatment at the Tanara Health Center in February-August 2020 compared to February-August 2021. This high increase in the number of hypertension patients can be attributed to more efficient screening and successful campaign for more regular check-ups. Nonetheless, more data are still needed to assess controlled and uncontrolled blood pressure and the effectiveness of each treatment.

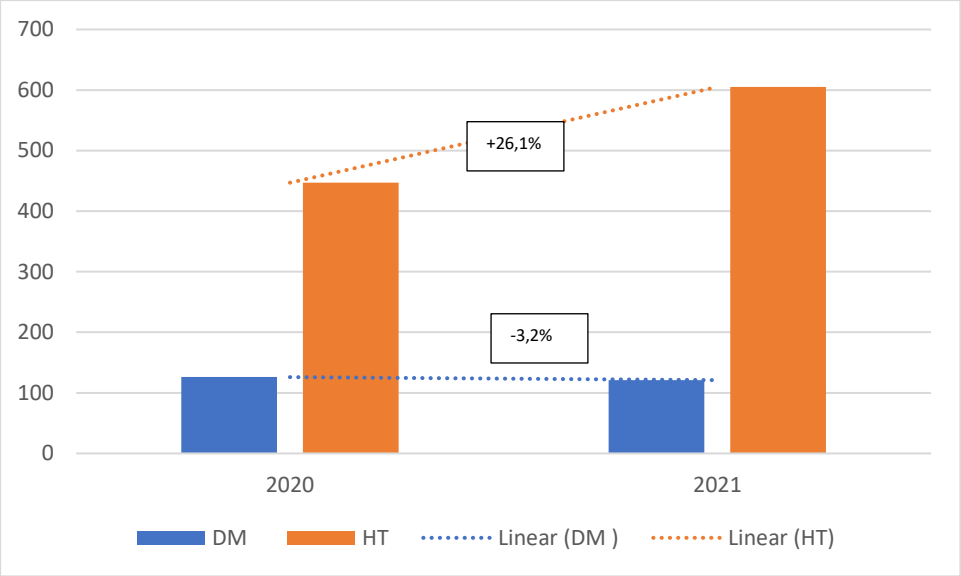

Figure 1. NCD patient visits during February–July Period in 2020 and 2021

Source: Tanara Community Health Center (2020, 2021)

Health promotion, especially regarding NCDs, through social media such as a Facebook page owned by the CHC, and WhatsApp groups involved patients with NCDs and their families. The result is that eight health promotion videos and three leaflets about NCDs have been distributed. In addition, the creation of a WhatsApp group was also planned as a forum for monitoring and consultation between the community and CHC officers. More information about NCDs is spread through social media and online platforms.

https://doi.org/10.7454/ajce.v6i1.1167

3.2. Integrated health post / Posbindu revitalization

This sub-program aims to increase the capacity of CHWs to carry out early detection and monitoring of Non-Communicable Disease (NCD) risk factors on a regular, integrated, and periodic basis. The main targets of Posbindu activities are healthy, at-risk groups and people aged 15 years and over with NCD (Ministry of Health, 2012). The revitalization process was carried out by providing socialization for the management of Posbindu , capacity building for CHWs and PPE to support Posbindu to deliver safe services during the COVID-19crisis. The socialization was given to 31 cadres from various villages in Tanara Sub-district. Then, three Posbindu were selected for intensive mentoring for the next six months.

The training of 31 CHWs was carried out seven times in Tanara Sub-district. The training covered topics including recognizing self-character and managing a team, managing Posbindu, introduction to the 5-table system, education on the use of PPE in the implementation of Posbindu, clear division of tasks between CHWs at each table, and regular maintenance of registers.

After the training ended, three Posbindu consisting of 14 CHWs received intensive mentoring for the next six months in the operation of Posbindu (Group A). Evaluations were carried out in pre-test and post-test questionnaires before and after training and mentoring in group A and before and after training without mentoring in group B.

Table 1 shows that the data distribution is similar in both groups. The majority of the CHWs were women, and the highest age was in the range of 30–50 years old. Most of the CHWs were housewives, 71.4% in group A and 88.2% in group B. The majority of CHWs in both groups completed secondary education. The length of time working as a CHW was also quite diverse. In group A, 42.9% had less than five years' experience as a CHW, and the remaining 57.1% had more than ten years' experience. In group B, the distribution was more even: 35.3% had been a CHW for less than five years, 23.5% were in the range of 5–10 years, and 41.2% had been a CHW for more than ten years.

https://doi.org/10.7454/ajce.v6i1.1167

Table 1. Sociodemographic characteristics of subjects

Variable	n (person,%)	
	Group A (training + mentoring)	Group B (training only)
Total	14 (100%)	17 (100%)
Gender		
Male	0 (0%)	1 (5.9%)
Female	14 (100%)	16 (94.1%)
Age group		
<30 years old	1 (7.1%)	4 (23.5%)
30–40 years old	9 (64.3%)	7 (41.2%)
40–50 years old	3 (21.4%)	6 (35.3%)
>50 years old	1 (7.1%)	0 (0%)
Occupation		
Housewife	10 (71.4%)	15 (88.2%)
Merchant	2 (14.3%)	1 (5.9%)
Teacher	1 (7.1%)	0 (0%)
Employee	1 (7.1%)	1 (5.9%)
Laborer	0 (0%)	0 (0%)
Education level		
Primary school	2 (14.3%)	0 (0%)
Junior high school	4 (28.6%)	7 (41.2%)
Senior high school	7 (50%)	8 (47.1%)
University	1 (7.1%)	2 (11.8%)
Working experience as a CHW		
< 5 years	6 (42.9%)	6 (35.3%)
5–10 years	0 (0%)	4 (23.5%)
> 10 years	8 (57.1%)	7 (41.2%)

Table 2. Pre-test and post-test mean difference

Group	n (person)	Pre-test score	Post-test score	p-value
A	14	8,85 ±1,17	13,14±1,88	<0,001*
B	19	9,00 (5,00–14,00)	11,29±2,14	0,009^

Note: *Paired t-test analysis; ^Wilcoxon test

As presented in Table 2, the normality test using Shapiro–Wilk showed that the pre-test scores in group B did not have a normal distribution. Therefore, the Wilcoxon test was conducted to see the difference between the pre-test and post-test scores in group B and obtained a statistically significant result (p = 0.009). Meanwhile, in group A, the distribution

https://doi.org/10.7454/ajce.v6i1.1167

of data was normal in the pre-test and post-test scores, so a paired t-test was carried out and had a statistically significant result, $p < 0.001$. This statistical analysis shows that the training provided to CHWs increases the level of knowledge. Furthermore, there was a higher post-test score in group A, which received intensive mentoring.

Another sub-program carried out to revitalize the integrated health post was to provide PPE in the form of hazmats, parachute gowns, medical masks, and goggles to ensure the safe implementation of Posbindu during a spike in COVID-19 cases in Tanara Village and Sukamanah Village. The program was conducted so that CHWs could carry out weekly blood sugar and blood pressure tests according to the recommendations of the Indonesian Ministry of Health (Ministry of Health, 2012).

The two action plans in this community service program are a continuation of NCD services at the community level and a team-based care model that follows the conditions and context of health services in Indonesia. Team-based services are services that seek to redistribute work between various teams of health workers (World Health Organization, 2018c). A meta-analysis in 2019 showed that team-based services effectively reduced the blood pressure of hypertension patients (Anand et al., 2019). In addition, the role of CHWs has also proven to be very important in reducing blood pressure, as evidenced in a study in Nepal regarding the intervention of CHWs who make home visits every four months to provide health counseling, check blood pressure, provide moral support, and make referrals.

One of the most important aspects of team-based services is strong coordination between teams, so an SOP is needed to guide technical implementation in NCD services. The preparation of two SOPs at the Tanara CHC shows that with the efforts of all team components, there was an increase of 26.1% in the number of NCD patients seeking treatment at Tanara CHC. This increase might indicate an increase in patient adherence to treatment. The screening process was also better both in in-building services and from Posbindu referrals. However, further evaluation is needed regarding the success of blood pressure control in patients receiving treatment and evaluation from the SOP. Several barriers in managing hypertension in primary health care include: (1) personnel and equipment shortages; (2) the provider's belief that multiple visits were needed before diagnosis and pharmaceuticals management; (3) improper medications because of shortages; and (4) poor patient visit attendance (Yan et al., 2017).

The preparation and coordination of out-of-building services also need attention to revitalize the Posbindu in Tanara Sub-district. However, due to the surge in COVID-19 cases, Posbindu activities require adjustments so that they can be implemented safely. The provision

https://doi.org/10.7454/ajce.v6i1.1167

of PPE and Posbindu Kits is material support given to Posbindu to ensure safe care. Intensive assistance was needed to guide CHWs in the context of procedural changes in Posbindu during the COVID-19crisis. However, the implementation of Posbindu in Sukamanah and Tanara villages was still sub-optimal because of the lack of support in proper health posts for conducting Posbindu activities. For several years, Posbindu took place in the house of the CHW.

Therefore, cooperation from the local government is needed to provide a suitable health post for the implementation of Posbindu, hand washing facilities, examination equipment, and protective equipment for CHWs in case of a new outbreak of COVID-19. Providing incentives, both financial and non-financial, can also help maintain and improve CHW performance (World Health Organization, 2018c). This pay incentive is supported by the Regulation of the Minister of Villages, Development of Disadvantaged Regions, and Transmigration of the Republic of Indonesia Number 17 of 2019 concerning General Guidelines for Community Development and Empowerment, where the provision of wages is an effort to utilize human resources in the village (Peraturan Menteri Desa, Pembagunan Daerah Tertinggal, Dan Transmigrasi Republik Indonesia Nomor 17 Tahun 2019 Tentang Pedoman Umum Pembagunan Dan Pemberdayaan Masyarakat, 2019). In addition, the Regional Health Office also needs to play a role in increasing the capacity of CHWs through routine training and material refreshers and by monitoring and evaluating the implementation of Posbindu as the spearhead of NCD detection at the community level.

The establishment of a WhatsApp group as a medium for NCD health promotion is the first step to developing a telemedicine system in NCD management at the community level. A similar resource has been created in India, through the India Hypertension Control Initiative. This initiative developed a mobile app (Simple) as a means of telemedicine consultation and also to remind patients to take medication regularly. The project hoped to reestablish proper monitoring after the large decline in the follow-up rate during the implementation of the previous NCD model (Kaur et al., 2021). With the high number of COVID-19 cases, the application has been used by one million patients for monitoring and telemedicine consultations. The application can also evaluate the performance of CHWs in controlling patients' blood pressure (Simple: Home, n.d.).

Team-based services that have been implemented need to be continued and improved regularly. This effort requires support from relevant policies, SOPs that must be continuously developed and evaluated, and coordination between a strong team and a monitoring and evaluation system both internally and externally. In addition, the mentoring process can also

https://doi.org/10.7454/ajce.v6i1.1167

be reconsidered if there are still problems that require external intervention. The use of technology can also be considered in NCD services to increase their future effectiveness and efficiency.

Long-term effectiveness of our action plan to accelerate NCD services in Tanara Sub-district has not been evaluated. Future studies might be needed to observe six outcome variables outlined as follows: (1) whether outcomes or benefits for consumers, patients, or clients are continued; (2) continuation of the program of activities or components of the original intervention; (3) maintenance of community-level partnership or coalitions developed during the funded program; (4) maintenance of the new organizational practices, policies, and procedures that were started during program implementation; (5) constant monitoring of the issue or problem; and (6) program diffusion and replication in other places (Scheirer& Dearing, 2011).

Despite the successes of increasing hypertension patients' visits by 26.1% and significantly increasing the knowledge of CHWs after our intervention, there are still many questions to address in future studies to assess the decrease in patients' blood pressure and in their perception of INSP and IHC. Further study is also needed to determine the optimal duration of training or mentoring to help CHWs achieve the desired level of competence. Inadequate training resulted in a low level of performance, motivation, and commitment on the part of CHWs in dealing with health issues in the community (Glenton et al., 2013). While longer training or mentoring periods could provide more exposure to specific health issues, they might be restricted by the cost and capability of the training provider and sponsor (Li et al., 2007). The ideal training period should be acceptable, affordable, and feasible in time and cost management but long enough to achieve improvement in expertise and competencies (World Health Organization, 2018a).

4. Conclusion

Comprehensive acceleration of NCD services in primary health care is needed. It should involve all parties starting with CHCs, CHWs, communities, local governments, the Ministry of Health, and academia to reduce morbidity and mortality due to NCDs and their associated complications, especially during the COVID-19crisis. Even though the implementation of this program may be restricted by the crisis, the results are satisfactory. This effort requires periodic monitoring and evaluation to sustain the current team based NCD care program, which can be expanded to include other services at CHCs.

https://doi.org/10.7454/ajce.v6i1.1167

Author Contribution

Conceptualization, Supevision, Project Administration, Resources and Funding Acquisition, AT and SAG; Methodology, Formal Analysis, Data Curation and Visualization, AB, SP, IPR, FH and RSA; Software and Validation, IP; Investigation, Writing – Original Draft Preparation, AT, FH, and RSA; Writing – Review & Editing, AT and FH.

Acknowledgment

We would like to express our gratitude for Serang District Health Office for the commitment to support us in this community service program; for Universitas Indonesia for the financial support; and for Tanara Community Health Care.

Funding

This community service program received financial assistance from the Universitas Indonesia Community Service and Empowerment Program Grant for Fiscal Year 2020 No.318/UN2.PPM/HKP.05.00/2020.

Declaration of Conflicting Interest

No conflict of interest to declare.

Short Biography

Akmal Taher obtained his medical degree in 1980 from the University of Indonesia. He started the urology training program at Universitas Indonesia and was registered as Urologist in 1988 and became staff member at the Department of Urology Universitas Indonesia until now. He was a research fellow at the Hannover Medical School and Institute for Peptide Research in Hannover from 1990 to 1992 and obtained his Doktor Medikus and his PhD degree in 1993, respectively, on the same school. He was the president of Indonesian Urological Association (2006-2009), Director of Cipto Mangunkusumo National General Hospital, Jakarta (2005-2010). He is the current President of Indonesian College of Urology for 2020-2023.

Soehartati A Gondhowiardjo (ORCID ID: 0000-0002-9446-4361) is a lecturer at the Department of Radiotherapy Universitas Indonesia – Cipto Mangunkusumo Hospital, Jakarta. She begins her medical career after she earned her medical degree in 1980 and enrolled into

https://doi.org/10.7454/ajce.v6i1.1167

the Department of Radiology, FKUI-RSCM for her specialty training. She graduated as a radiologist in 1987, after which she joined the Division of Radiotherapy in the Department of Radiology and continued further training in the field of Radiation Oncology in the Strahlentherapie Abteilung Wilhelm-Waestfaelichen, Universitaet Muenster – Germany from 1988 to 1989. Her current field placement is the head of Pelayanan Kanker Terpadu (PKaT)/Integrated Cancer Care RSCM.

Adang Bachtiar (ORCID ID: 0000-0003-3321-9757) is a lecturer at the Faculty of Public Health, Universitas Indonesia, Depok. He received a bachelor's degree from Faculty of Medicine Universitas Indonesia, Indonesia, Master of Public Health form Harvard University, USA, Doctor of Science from John Hopkins University, USA and Post-Doctoral in Statistics from University of Michigan, USA. He is currently the head of Public Health Experts Board of The Indonesian Public Health Association. He is interested in and has published many articles regarding a broad spectrum of disease such as Dengue Hemorrhagic Fever, Tuberculosis and about Non-Communicable Diseases.

Sabarinah Prasetyo is a lecturer at the Department of Biostatistics and Population, Faculty of Public Health, Universitas Indonesia, Depok. She received her bachelor's degree from Faculty of Medicine Universitas Indonesia, Master of Science and Doctoral Degree from Faculty of Public Health Universitas Indonesia, Depok. She was the head of National Epidemiology Network (Jaringan Epidemiologi Nasional) 2009-2012 and the head of the Center of Health Research Universitas Indonesia (Pusat Penelitian Kesehatan UI). She has published several research articles about the topics of Non-Communicable Disease, health services to older people and pregnancy population.

Irene Pixelyne Romauli received bachelor's degree of Computer Science from Universitas Indonesia in 2021. She is currently a product manager in one of Indonesa's biggest marketplace application. She has several experiences as product development intern and product management intern in several start-ups.

Ficky Huang (ORCID ID: 0000-0003-3813-8040) is an assistant researcher in Department of Urology, Faculty of Medicine Universitas Indonesia – Cipto Mangunkusumo Hospital Jakarta, Indonesia. He received his bachelor's degree in Medicine and graduated as Medical Doctor from Faculty of Medicine Universitas Indonesia in 2020. He finished his mandatory

https://doi.org/10.7454/ajce.v6i1.1167

internship program in General Hospital Kepulauan Meranti, Riau from 2020-2021. He is interested in public health research, oncology and non-communicable diseases prevention and treatment.

Rima Sumayyah Ahmad is a Project Officer of Center for Indonesia's Strategic Development Initiatives (CISDI). She received her bachelor's degree in Science Nutrition from Universitas Jenderal Soedirman in 2016. She has several years of experience working in non-government organization focusing empowering health community, strengthening quality of primary health care, developing intervention program reducing non-communicable disease, assisting Posyandu in remote area as Kalimantan Tengah and Lampung Province. She is also active in several start-up initiatives including NutriC, Mocava.Id, and ketimbangrebahan.id. She is currently the president of Garnis (Keluarga Alumni Gizi Unsoed).

References

Anand, T. N., Joseph, L. M., Geetha, A. v, Prabhakaran, D., &Jeemon, P. (2019). Task sharing with non-physician health-care workers for management of blood pressure in low-income and middle-income countries: a systematic review and meta-analysis. *The Lancet Global Health*, *7*(6), e761-e771. https://doi.org/10.1016/S2214-109X(19)30077-4

Badan Pusat Statistik Kabupaten Serang. (2019). *Profil Kecamatan Tanara Dalam Angka*. BPS Kabupaten Serang.

Carter, B. L., Rogers, M., Daly, J., Zheng, S., & James, P. A. (2009). The potency of team-based care interventions for hypertension: a meta-analysis. *Archives of Internal Medicine*, *169*(19), 1748-1755. https://doi.org/10.1001/archinternmed.2009.316

Dinas Kesehatan Kabupaten Serang. (2019). *Profil Kesehatan Kabupaten Serang Tahun 2019*.

Chisholm-Burns, M. A., Lee, J. K., Spivey, C. A., Slack, M., Herrier, R. N., Hall-Lipsy, E., ... & Wunz, T. (2010). US pharmacists' effect as team members on patient care: systematic review and meta-analyses. *Medical care*, 923-933. https://www.jstor.org/stable/25750579

Dong, E., Du, H., & Gardner, L. (2020). An interactive web-based dashboard to track COVID-19 in real time. *The Lancet Infectious Diseases*, *20*(5), 533-534. https://doi.org/10.1016/S1473-3099(20)30120-1

https://doi.org/10.7454/ajce.v6i1.1167

Glenton C., Colvin, C. J., Carlsen, B., Swartz, A., Lewin, S., Noyes, J., & Rashidian, A. (2013). Barriers and facilitators to the implementation of lay health worker programmes to improve access to maternal and child health: qualitative evidence synthesis. *The Cochrane Database of Systematic Reviews*, *2013*(10). https://doi.org/10.1002/14651858.CD010414.PUB2

Guedes M. B. O. G., de Assis, S. J. C., Sanchis, G. J. B., Araujo, D. N, Oliveira AGRDC, & Lopes J. M. (2021). COVID-19 in Brazilian cities: impact of social determinants, coverage and quality of primary health care. *PLoS One*, *16*(9). https://doi.org/10.1371/JOURNAL.PONE.0257347

Huston, P., Campbell, J., Russell, G., Goodyear-Smith, F., Phillips, R. L., van Weel, C., & Hogg, W. (2020). COVID-19 and primary care in six countries. *BJGP Open*, *4*(4), bjgpopen20X101128. https://doi.org/10.3399/bjgpopen20x101128

Kaur, P., Kunwar, A., Sharma, M., Mitra, J., das, C, Swasticharan, L., & Chakma, T. (2021). India Hypertension Control Initiative-Hypertension treatment and blood pressure control in a cohort in 24 sentinel site clinics. *Journal of Clinical Hypertension (Greenwich, Conn.)*, *23*(4), 720-729. https://doi.org/10.1111/JCH.14141

Li, V. C., Goethals, P. R., & Dorfman, S. (2007). A global review of training of community health workers. *International Quarterly of Community Health Education*, *27*(3), 181-218. https://doi.org/10.2190/IQ.27.3.b

Ministry of Health. (2012). *Petunjuk Teknis Pos Pembinaan Terpadu Penyakit Tidak Menular (POSBINDU PTM)*. Direktorat Jendral Pengendalian dan Penyehatan Lingkungan Kementerian Kesehatan Republik Indonesia.

Ministry of Health. (2018). *Riset Kesehatan Dasar 2018*. Direktorat Jendral Pengendalian dan Penyehatan Lingkungan Kementerian Kesehatan Republik Indonesia.

Ministry of Health. (2019). *Buku Pedoman Manajemen Penyakit Tidak Menular*. Direktorat Pencegahan dan Pengendalian Penyakit Tidak Menular Kementerian Kesehatan Republik Indonesia.

Ministry of Health. (2020). *Petunjuk Teknis Pelayanan Puskesmas Pada Masa Pandemi COVID-19*. Direktorat Pelayanan Kesehatan Primer Kementerian Kesehatan Republik Indonesia.

Nikoloski, Z., Alqunaibet, A., & Alfawaz, R. (2021). Covid-19 and non-communicable diseases: evidence from a systematic literature review. *BMC Public Health*, *21*(1068), 1-9. https://doi.org/10.1186/s12889-021-11116-w

Peraturan Menteri Desa, Pembagunan Daerah Tertinggal, dan Transmigrasi Republik Indonesia Nomor 17 tahun 2019 tentang Pedoman Umum Pembagunan dan Pemberdayaan Masyarakat., (2019) (testimony of Disadvantaged Regions and Transmigration. Ministry of Villages).

Peiris, D., Sharma, M., Praveen, D., Bitton, A., Bresick, G., Coffman, M., ... & Mash, R. (2021). Strengthening primary health care in the COVID-19 era: a review of best practices to inform health system responses in low- and middle-income countries. *WHO South-East Asia Journal of Public Health*, *10*(3), 6. https://doi.org/10.4103/2224-3151.309867

Plagg, B., Piccoliori, G., Oschmann, J., Engl, A., & Eisendle, K. (2021). Primary health care and hospital management uring COVID-19: lessons from Lombardy. *Risk Management and Healthcare Policy*, *14*, 3987-3992. https://doi.org/10.2147/RMHP.S315880

Proia, K. K., Thota, A. B., Njie, G. J., Finnie, R. K., Hopkins, D. P., Mukhtar, Q., Cooksey, T. (2014). Team-based care and improved blood pressure control: a community guide systematic review. *American journal of preventive medicine*, *47*(1), 86-99. https://doi.org/10.1016/j.amepre.2014.03.004

Rahman, G. S., Ridwan, M., Nora, H., Syukri, M., & Ismida, F. D. (2021). The pandemic of COVID-19 decreased adherence to treatment among hypertension patients at Dr. Zainoel Abidin Hospital. *Trends in Infection and Global Health*, *1*(2), 58-65. https://doi.org/10.24815/tigh.v1i2.22418

Rhatomy, S., & Prasetyo, T. E. (2020). Impact of COVID-19 on primary care visits: lesson learnt from the early pandemic period. *Journal of Community Empowerment for Health*, *3*(2), 102. https://doi.org/10.22146/jcoemph.57918

Santschi, V., Wuerzner, G., Chiolero, A., Burnand, B., Schaller, P., Cloutier, L., ... & Burnier, M. (2017). Team-based care for improving hypertension management among outpatients (TBC-HTA): study protocol for a pragmatic randomized controlled trial. *BMC cardiovascular disorders*, *17*(1), 1-6. https://doi.org/10.1186/s12872-017-0472-y

Scheirer, M. A., & Dearing, J. W. (2011). An agenda for research on the sustainability of public health programs, *101*(11), 2059-2067. https://doi.org/10.2105/AJPH.2011.300193

Simple: Home. (n.d.). Retrieved November 4, 2021, from https://www.simple.org/

Surendra, H., Elyazar, I. R., Djaafara, B. A., Ekawati, L. L., Saraswati, K., Adrian, V., ... & Hamers, R. L. (2021). Clinical characteristics and mortality associated with COVID-19 in Jakarta, Indonesia: A hospital-based retrospective cohort study. *The Lancet Regional Health–Western Pacific*, *9*, 100108. https://doi.org/10.1016/J.LANWPC.2021.100108

Tanara Community Health Center. (2020). *Laporan Tahunan Kunjungan Pasien Puskesmas Tanara 2020*. Tangerang Community Health Centre.

Tanara Community Health Center. (2021). *Laporan Tahunan Kunjungan Pasien Puskesmas Tanara 2021*. Tangerang Community Health Centre.

Tsaqif, A. (2021). Analisis Perbandingan Jumlah Pasien Sebelum dan Setelah Pandemi Covid-19 UPT Puskesmas Tahun 2019-2020. *Jurnal Rekam Medis Dan Informasi Kesehatan*, *4*(2), 90-97. https://doi.org/10.31983/jrmik.v4i2.7679

World Health Organization. (2018a). *n. WHO guideline on health policy and system support to optimize community health worker programmes*. World Health Organtization.

World Health Organization. (2018b). *NONCOMMUNICABLE DISEASES COUNTRY PROFILES 2018*. World Health Organization. https://apps.who.int/iris/handle/10665/274512

World Health Organization. (2018c). *Team-based care*. World Health Organization. http://apps.who.int/iris/bitstream/handle/10665/260424/WHO-NMH-NVI-18.4-eng.pdf?sequence=1

World Health Organization. (2018d). *WHO guideline on health policy and system support to optimize community health worker programmes*. World Health Organization. http://apps.who.int/iris/bitstream/handle/10665/275474/9789241550369-eng.pdf

World Health Organization. (2021, November 3). *Indonesia: WHO Coronavirus Disease (COVID-19) Dashboard With Vaccination Data | WHO Coronavirus (COVID-19) Dashboard With Vaccination Data*. https://covid19.who.int/region/searo/country/id

World Health Organization Western Pacific Region. (2021). *Role of primary care in the COVID-19 response*. https://apps.who.int/iris/bitstream/handle/10665/331921/Primary-care-COVID-19-eng.pdf?sequence=5&isAllowed=y

Yan, L. D., Chirwa, C., Chi, B. H., Bosomprah, S., Sindano, N., Mwanza, M., Musatwe, D., Mulenga, M., &Chilengi, R. (2017). Hypertension management in rural primary care facilities in Zambia: a mixed methods study. *BMC Health Services Research*, *17*(1), 1–10. https://doi.org/10.1186/S12913-017-2063-0